

Results of Directional Survey

API number:	30-025-39670		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	B LEE STATE # 11

surface	ULSTR:	F	07	T	18S	R	35E
				1575	FNL	1855	FWL

BH Loc	ULSTR:	F	07	T	18S	R	35E
6611	MD	6602.7	TVD	1654	FNL	1656	FWL

Top Perf/OH	ULSTR:	F	07	T	18S	R	35E
5904	MD	5895.9	TVD	1646	FNL	2041	FWL

Bot Perf/OH	ULSTR:	F	07	T	18S	R	35E
6313	MD	6304.7	TVD	1655	FNL	1655	FWL

	MD	N/S	E/W	VD
	5812	-71.85	-195.42	5803.93
TOP PERFS/OH	5904	-71.08	186.04	5895.88
	5907	-71.05	198.48	5898.88
	6288	-79.74	-200.73	6279.70
BOT PERFS/OH	6313	-79.86	-200.46	6304.70
	6416	-80.36	-199.36	6407.69

NEXT TO LAST	6416	-80.36	-199.36	6407.69
LAST READING	6563	-79.02	-199.38	6554.68
TD	6611	-78.58	-199.39	6602.68

Surface Location	1575	FN	1855	FW
Projected BHL	1654	FN	1656	FW
Location of				
Top Perfs/OH	1646	FN	2041	FW
Bottom Perfs/OH	1655	FN	1655	FW

SUMMARY of Subsurface Locations

Surface Location	F-07-18S-35E	1575	FN	1855	FW	Vert. Depth
Top Perfs/OH	F-07-18S-35E	1646	FN	2041	FW	5895.88
Bottom Perfs/OH	F-07-18S-35E	1655	FN	1655	FW	6304.70
Projected TD	F-07-18S-35E	1654	FN	1656	FW	6602.68



An Operating Unit of Smith International, Inc.

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HOBBSOCD

DIRECTIONAL SURVEY REPORT

MACK ENERGY

B LEE STATE #11

LEA COUNTY, NEW MEXICO

SUR @ F-7-18s-35e, 1575/N & 1855/W
BHL @ F-7-18s-35e, 1654/N & 1656/W
API # 30-025-39670

PREPARED BY: FRANCISCO SINISTERRA

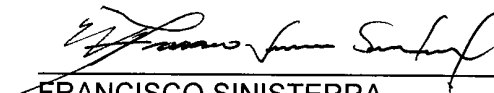
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) DEREK BOYD
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 07-15-10 TO 07-20-10
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: LEA COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY
B LEE STATE #11
LEA COUNTY, NM
RIG: SILVER OAK 2

9. SURVEY CERTIFIED FROM: 1674 TO 6563 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 214.61 FEET ON A BEARING OF 248.53 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 6611 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 07/14/2010
Date Completed: 07/20/2010

MACK ENERGY
B LEE STATE #11
LEA COUNTY, NM
Rig:SILVER OAK #2
PathFinder Office Supervisor: Francisco Sinisterra
PathFinder Field Engineers:Derek Boyd

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.45.54.8445 N LON:103.29.55.7075 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 756530.8000 Y: 643114.4000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.26° EAST TO GRID
Vertical Section Plane: 247.11
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude:3976.00' Ground To MSL

Measured Depth	6611.00	(feet)
Inclination	0.70	(deg)
Azimuth	324.15	(deg)
True Vertical Depth	6602.67	(feet)
Vertical Section	214.54	(feet)
Survey X cord	756331.08	(feet)
Survey Y cord	643035.86	(feet)
Survey Lat	32.76502302 N	(deg)
Survey Lon	103.49945930 W	(deg)
Rectangular Corr. N/S	78.54 S	(feet)
Rectangular Corr. E/W	199.72 W	(feet)
Closure Distance	214.61	(feet)
Direction of Closure	248.53	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY
B LEE STATE #11
LEA COUNTY, NM
Rig:SILVER OAK #2
PathFinder Office Supervisor: Francisco Sinisterra
PathFinder Field Engineers: Derek Boyd

Page 01/02
Tie-in Date: 07/14/2010
Date Completed: 07/20/2010

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.45.54.8445 N LON:103.29.55.7075 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 756530.8000 Y: 643114.4000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.26° EAST TO GRID
Vertical Section Plane: 247.11
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude:3976.00' Ground To MSL

Survey Calculations by RX5 V6.03A using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
TIE-IN TO NAVIGATE ENERGY SURVEYS @ 1528' MD										
1528.00	1.20	51.50	1527.95	0.00	-7.03	2.44 N	6.60 E	7.04@	69.71	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS:										
1674.00	0.53	57.44	1673.93	146.00	-9.17	3.76 N	8.37 E	9.17@	65.83	0.46
1770.00	0.97	255.32	1769.93	96.00	-8.80	3.79 N	7.95 E	8.81@	64.53	1.55
1865.00	0.97	290.72	1864.92	95.00	-7.42	3.87 N	6.42 E	7.50@	58.94	0.62
1960.00	2.37	266.26	1959.87	95.00	-4.98	4.03 N	3.71 E	5.48@	42.68	1.62
2055.00	4.57	244.04	2054.70	95.00	0.65	2.24 N	1.65 W	2.78@	323.59	2.67
2150.00	4.57	243.28	2149.40	95.00	8.21	1.12 S	8.44 W	8.51@	262.45	0.06
2246.00	4.48	239.90	2245.10	96.00	15.74	4.72 S	15.10 W	15.82@	252.64	0.29
2340.00	4.48	238.64	2338.81	94.00	23.02	8.47 S	21.41 W	23.02@	248.41	0.10
2436.00	3.96	235.84	2434.55	96.00	29.97	12.28 S	27.35 W	29.98@	245.82	0.58
2530.00	4.31	249.00	2528.31	94.00	36.69	15.37 S	33.33 W	36.71@	245.25	1.07
2625.00	3.96	245.82	2623.06	95.00	43.54	17.99 S	39.66 W	43.55@	245.60	0.44
2722.00	4.57	252.76	2719.79	97.00	50.73	20.51 S	46.41 W	50.74@	246.16	0.82
2816.00	3.61	252.96	2813.55	94.00	57.40	22.49 S	52.81 W	57.40@	246.94	1.02
2912.00	4.22	250.28	2909.33	96.00	63.93	24.57 S	59.03 W	63.93@	247.40	0.66
3006.00	4.04	250.57	3003.08	94.00	70.69	26.83 S	65.41 W	70.70@	247.69	0.19
3102.00	3.61	249.17	3098.87	96.00	77.09	29.03 S	71.42 W	77.10@	247.88	0.46
3198.00	5.28	248.52	3194.58	96.00	84.53	31.73 S	78.36 W	84.53@	247.96	1.74
3292.00	4.84	249.13	3288.21	94.00	92.81	34.72 S	86.09 W	92.82@	248.03	0.47
3387.00	4.31	246.89	3382.91	95.00	100.39	37.55 S	93.11 W	100.40@	248.04	0.59
3482.00	3.87	244.97	3477.66	95.00	107.16	40.31 S	99.30 W	107.17@	247.91	0.49
3589.00	4.57	253.69	3584.37	107.00	115.00	43.03 S	106.66 W	115.02@	248.03	0.89
3683.00	4.22	254.14	3678.10	94.00	122.16	45.03 S	113.59 W	122.19@	248.37	0.37
3779.00	3.69	251.45	3773.87	96.00	128.74	46.98 S	119.91 W	128.79@	248.61	0.59

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY
B LEE STATE #11
LEA COUNTY, NM
RIG:SILVER OAK #2

Page 02/02

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
3874.00	4.92	256.42	3868.60	95.00	135.81	48.91 S	126.77 W	135.88@	248.90	1.35
3969.00	4.31	253.06	3963.29	95.00	143.38	50.90 S	134.15 W	143.48@	249.22	0.70
4065.00	4.04	254.77	4059.04	96.00	150.32	52.84 S	140.86 W	150.45@	249.44	0.31
4160.00	3.78	253.50	4153.82	95.00	156.75	54.61 S	147.09 W	156.90@	249.63	0.29
4255.00	5.10	246.52	4248.53	95.00	164.08	57.18 S	153.97 W	164.24@	249.62	1.50
4350.00	4.66	246.41	4343.18	95.00	172.17	60.41 S	161.38 W	172.31@	249.48	0.46
4446.00	4.22	244.67	4438.90	96.00	179.59	63.48 S	168.14 W	179.73@	249.32	0.48
4541.00	3.96	247.86	4533.65	95.00	186.37	66.21 S	174.34 W	186.49@	249.20	0.36
4636.00	3.43	247.90	4628.46	95.00	192.49	68.52 S	180.01 W	192.61@	249.16	0.56
4731.00	3.34	247.88	4723.29	95.00	198.10	70.63 S	185.21 W	198.22@	249.12	0.09
4826.00	3.52	248.67	4818.12	95.00	203.78	72.73 S	190.49 W	203.90@	249.10	0.20
4922.00	1.76	238.66	4914.02	96.00	208.18	74.57 S	194.49 W	208.30@	249.02	1.89
5018.00	0.26	104.74	5010.00	96.00	209.47	75.40 S	195.54 W	209.57@	248.91	2.03
5113.00	0.18	83.90	5105.00	95.00	209.16	75.43 S	195.19 W	209.25@	248.87	0.12
5208.00	0.70	86.69	5200.00	95.00	208.47	75.39 S	194.46 W	208.56@	248.81	0.55
5304.00	0.70	73.14	5295.99	96.00	207.33	75.18 S	193.31 W	207.42@	248.75	0.17
5399.00	0.62	225.05	5390.99	95.00	207.23	75.38 S	193.12 W	207.31@	248.68	1.35
5494.00	0.26	161.90	5485.99	95.00	207.72	75.94 S	193.42 W	207.79@	248.56	0.58
5653.00	1.06	359.48	5644.98	159.00	207.19	74.82 S	193.32 W	207.29@	248.84	0.82
5812.00	1.85	305.66	5803.93	159.00	207.97	71.85 S	195.42 W	208.21@	249.81	0.94
5907.00	2.20	266.87	5898.88	95.00	210.49	71.05 S	198.48 W	210.82@	250.30	1.46
5992.00	2.29	219.28	5983.82	85.00	213.53	72.46 S	201.19 W	213.84@	250.19	2.13
6097.00	1.49	192.03	6088.76	105.00	216.16	75.42 S	202.80 W	216.37@	249.60	1.13
6192.00	1.67	144.07	6183.73	95.00	216.56	77.75 S	202.24 W	216.67@	248.97	1.36
6288.00	1.32	141.14	6279.70	96.00	215.94	79.74 S	200.73 W	215.99@	248.33	0.37
6416.00	0.62	39.96	6407.69	128.00	214.92	80.36 S	199.36 W	214.95@	248.05	1.22
6563.00	0.70	324.15	6554.68	147.00	214.41	79.02 S	199.38 W	214.46@	248.38	0.55
STRAIGHT-LINE PROJECTION TO BIT @ 6611' MD.										
6611.00	0.70	324.15	6602.67	48.00	214.54	78.54 S	199.72 W	214.61@	248.53	0.00



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY		
LEASE / WELL No.:	B LEE STATE	#11	
WELL LOCATION:	LEA COUNTY, NM		
COUNTY / STATE / COUNTRY:	LEA	NM	USA
RIG:	SILVER OAK #2		
API WELL No:	30-025-39670		
JOB No:	101010898-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.26°	LWD Calculated:	7.26°
		Agreed Upon:	7.26°
X =	756530.800000	Feet	Y = 643114.400000
			Feet
SITE LATITUDE:	32.765235N	SITE LONGITUDE:	103.498808W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	247.11°		
KELLY BUSHING ELEVATION:	19		
ALTITUDE:	3976	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	1528		
DRIFT ANGLE:	1.20°		
DRIFT DIRECTION:	51.50°		
TRUE VERTICAL DEPTH:	1527.95		
VERTICAL SECTION:	-7.03		
RECTANGULAR COORDINATE (N / S) :	2.44		
RECTANGULAR COORDINATE (E / W) :	6.6		
CLOSURE DISTANCE / DIRECTION:	7.04	69.71	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	RIG SURVEYS		
COPY OF TIE-IN SURVEY REPORT	☒ YES		☐ NO

WELL PLAN

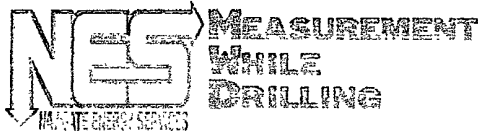
KICKOFF DEPTH:	1750.00' MD	TOTAL DEPTH:	6607.11' MD
KICKOFF ANGLE:	0.0°	MAX ANGLE:	3.95

PES Engineers:

**Signature of both field engineers required if applicable

Directional Driller:

DATE: 14-JUL-10



SWD SURVEY REPORT

Job Number : WNM-2076-S
 Report Date : JULY 13,2010
 Operator : MACK ENERGY
 Lease / Well : B.LEE ST#11
 Location : BUCKEYE,NM
 Field :
 Contractor / Rig : SILVER OAK 2
 Directional Company :
 MWD Field Rep. : Brandon Ramirez
 Tie In Survey Reference : Surface
 Calculation Method : MINIMUM CURVATURE
 API Number : N/A

Target +N / -S = 0.0'
 Target +E / -W = 0.0'
 Target TVD = 1615.0'
 Magnetic Declination +E / -W = 7.71°
 Grid Convergence +E / -W = 0.45°
 Total Correction +E / -W = 7.26°
 North Reference = Grid
 RKB Height = 17.50'
 Ground Level Elevation = 3975'
 Vertical Section Azimuth = 0.00°

Comments :

SURVEY #0 = TIE IN SURVEY

SURVEY #13= STRAIGHT LINE PROJECTED SURVEY TO BOTTOM HOLE DEPTH

Srv. No.	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure		Dogleg Severity (deg/100 ')
							+N / -S (ft)	+E / -W (ft)	Distance (ft)	Azimuth (deg)	
0	0.00'	0.00°	0.00°		0.00'	0.00'	0.00'	0.00'			
1	115.00'	0.10°	239.50°	115'	115.00'	-0.05'	-0.05'	-0.09'	0.10'	239.50°	0.09°
2	261.00'	0.20°	316.60°	146'	261.00'	0.07'	0.07'	-0.37'	0.38'	280.61°	0.14°
3	383.00'	0.20°	94.80°	122'	383.00'	0.21'	0.21'	-0.31'	0.37'	304.05°	0.31°
4	504.00'	0.40°	311.10°	121'	504.00'	0.47'	0.47'	-0.41'	0.62'	318.46°	0.47°
5	626.00'	0.40°	42.80°	122'	626.00'	1.06'	1.06'	-0.44'	1.15'	337.21°	0.47°
6	748.00'	0.10°	193.40°	122'	748.00'	1.27'	1.27'	-0.18'	1.28'	351.91°	0.40°
7	896.00'	0.50°	84.30°	148'	895.99'	1.21'	1.21'	0.43'	1.28'	19.72°	0.37°
8	1024.00'	0.20°	44.00°	128'	1023.99'	1.42'	1.42'	1.14'	1.82'	38.79°	0.29°
9	1152.00'	0.70°	87.20°	128'	1151.99'	1.62'	1.62'	2.08'	2.64'	52.06°	0.45°
10	1277.00'	0.40°	110.50°	125'	1276.98'	1.51'	1.51'	3.25'	3.58'	65.15°	0.29°
11	1409.00'	0.90°	80.80°	132'	1408.97'	1.51'	1.51'	4.71'	4.94'	72.21°	0.44°
12	1528.00'	1.20°	51.50°	119'	1527.95'	2.44'	2.44'	6.60'	7.04'	69.76°	0.51°
13	1596.00'	1.20°	51.50°	68'	1595.94'	3.32'	3.32'	7.72'	8.40'	66.71°	0.00°

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY
B LEE STATE #11
LEA COUNTY, NEW MEXICO
Rig:SILVER OAK #2

Fri Jul 09 11:42:14 2010

Coordinates

Latitude: 32.765235 N (32 deg. 45 min. 54.8445 sec.)
Longitude: 103.498808 W (-103 deg. 29 min. 55.7075 sec.)
Elevation: 3994.00 feet.
Calculation Date: Jul/09/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7246 degrees
Total Magnetic Field: 0.49041 gauss
Magnetic Declination: 7.706892 degrees
Horizontal Intensity: 0.239815 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.706892 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 756530.8000 feet
Y: 643114.4000 feet
True to Grid: (convergence) -0.451667 degrees
Magnetic to Grid: 7.255226 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.255226 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY
B LEE STATE #11
BLINEBRY

Wed Jul 14 15:47:09 2010

Coordinates

Latitude: 32.765235 N (32 deg. 45 min. 54.8445 sec.)
Longitude: 103.498808 W (-103 deg. 29 min. 55.7075 sec.)
Elevation: 3995.00 feet.
Calculation Date: Jul/14/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7243 degrees
Total Magnetic Field: 0.49040 gauss
Magnetic Declination: 7.705208 degrees
Horizontal Intensity: 0.239811 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.705208 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 756530.8000 feet
Y: 643114.4000 feet
True to Grid: (convergence) -0.451667 degrees
Magnetic to Grid: 7.253541 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.253541 Degr.